MEETING OF THE PACIFIC SCIENTIFIC REVIEW GROUP
SOUTHWEST FISHERIES SCIENCE CENTER, LA JOLLA, CALIFORNIA
23-24 JANUARY 2002

The twelfth meeting of the Pacific Scientific Review Group (SRG) was held at the Southwest Fisheries Science Center, La Jolla, California from 23 to 24 January 2002. All Pacific SRG members were in attendance with the exception of Mark Fraker. Meghan Donahue served as rapporteur. Michael Scott served as chairman of the SRG. The SRG members and other participants are listed in Appendix 1, review documents are listed in Appendix 2, and the agenda of the meeting is in Appendix 3.

Working Group on Recovery Factors

At previous meetings, the SRG recommended that the NMFS develop criteria for changing the Recovery Factor from default values, particularly for species that are listed as endangered, but are not currently in danger of extinction. Combining the default 0.1 Recovery Factor with the 0.1 * PBR ZMRG guideline makes it exceedingly difficult for some fisheries to achieve ZMRG even when takes are very low. At a joint meeting in 1999, the SRGs recommended that a working group, composed of NMFS, USFWS, and SRG representatives, continue to develop the draft proposal presented at that meeting by Barb Taylor, and present a revised proposal to the SRGS at their next individual meetings. No progress has been made on this task, so the Pacific SRG decided to appoint a small group (Barlow, Heyning, Scott and Taylor) to suggest criteria for changing the recovery factor from the default.

Definition of ZMRG

Tom Eagle briefed the group on the status of ZMRG definition. A progress report on ZMRG definition was due in April 1998. Proposed definitions of ZMRG continue to be considered but would lead to very low numbers of takes, especially for ESA-listed species. whales. In addition, allocation of resources by NMFS has focused on stocks that are still exceeding PBR versus defining and achieving ZMRG.

The SRG notes, as it has previously, that the deadline for determining whether or not fisheries have met the Zero Mortality Rate Goal has come and gone. NMFS has yet to define what the ZMRG is, making it problematic for fisheries to comply with the MMPA, for the NMFS to manage these fisheries towards this goal, and for the SRG and TRT to advise NMFS on how to achieve this goal.

NMFS Responses to SRG Recommendations

The group briefly discussed the letter from NMFS in response to the SRG recommendations. The letter noted the difficulty in re-programming already limited resources to pursue additional data collection and analysis related to sperm whales along the Pacific Coast. The letter recognized that incidental mortality and serious injury of this stock sperm whales has exceeded PBR levels in the past, but indicated that the PBR level of the California/Oregon/Washington stock likely represents a value that would result in a small impact of the stock. The SRG noted that sperm whale mortality and serious injury is closely approaching PBR. Jay Barlow described some limited, opportunistic data collection on sperm

whales (acoustic and biopsy) that has been conducted in the Gulf of Alaska and will continue in conjunction with right whale surveys in 2002.

Hawaiian Longline Fishery

Regulatory framework of fishery. Tim Price provided an update on the status of the Hawaii longline fishery (PSRG-21). On 29 March 2001, the NMFS issued a biological opinion on the pelagic fisheries (longline, handline, troll) under the Fishery Management Plan for the Pelagic Fisheries of the Western Pacific Region. The biological opinion proposed the prohibition of longline fishing practices targeting swordfish north of the equator, and a time and area closure for tuna style fishing south of 15° N latitude, north of the equator, west of 145° and east of 180° longitude between April 1st and May 31st. The Biological Opinion also established limited access permit restrictions and recommended establishing or funding programs to ensure that harmful impacts to turtles captured in fisheries under the Pelagics FMP are avoided or minimized to the extent possible.

A court order (U.S. District Court) on 30 March 2001 prohibited longline fishing practices targeting swordfish north of the equator, specified requirements for the sag (deepest point) and the float line, and prohibits possession of lightsticks on board. It also imposed a prohibition on fishing with longline gear during the months of April and May south of 15° N latitude, north of the equator, west of 145°W and east of 180°E longitude. The court order also specified additional registration and operational requirements with which vessel operators must comply.

In June, the NMFS issued an emergency interim rule applicable to vessels registered under a Hawaii longline limited access permit and prohibiting the targeting of swordfish north of the equator and longline fishing in waters south of the Hawaiian Islands during the months of April and May. The rule allows the re-registration of vessels to Hawaii longline limited access permits only in October, imposes additional sea turtle handling and resuscitation measures, and requires all Hawaii longline vessel operators to attend an annual protected species workshop.

Since the issuance of the Biological Opinion and the court order, two complaints have been filed in U.S. District Courts, one alleging the Biological Opinion was prepared in violation of the Administrative Procedures Act and the Endangered Species Act and one alleging the reasonable and prudent alternative put forth in the Biological Opinion does not avoid jeopardy. In December 2001, the NMFS reinitiated consultation of the Biological Opinion based on the following information not previously considered: 1) a new sea turtle population model, 2) additional nesting beach information, 3) additional observer data, 4) a lower number of vessels being active than anticipated, 5) corrections of minor computational errors. The NMFS has taken action to keep the reasonable and prudent alternative in effect until the internal consultation on the Biological Opinion is complete.

Review of recent catch and effort data. Jay Barlow presented maps with observed set locations and observed sets with marine mammal takes of the Hawaii longline fleet from 1994 to present (PSRG-6). The graphs indicate that the area being fished under the new regulations is not much smaller than the area fished previously (it still comprises an area approximately the size of the

continental U.S.) and occurs to the south, north and east of the island chain. Species composition of the marine mammal bycatch in the fishery has not changed over this period and still primarily consists of Risso's dolphins, false killer whales, and pilot whales. Hook location is often not specified on marine mammal interactions records (probably because it often cannot be determined) making it difficult to determine whether serious injuries (*e.g.*, hooking in the mouth) occur or not.

Barlow discussed the Hawaii EEZ cetacean abundance survey planned for the fall of 2002. The EEZ is the area most relevant to the Stock Assessment Reports, but it has been proposed that an additional survey be conducted in 2003 that includes more of the longline fishery area. Current ship resources have only a 20-day endurance, which would be insufficient to cover the additional larger area. Although the EEZ area is only approximately 25% of the entire fishery area, about 50% of the sets made between 1994 and present are made within the EEZ. The SRG discussed the need for an expanded Hawaii survey to cover the longline fishery interactions area (outside the EEZ) and agreed to revisit the subject at a future meeting after the results from the EEZ survey have been reviewed. Continuation of small-scale research in Hawaii is planned, including photo-ID, mark-recapture, biopsy and radiotracking studies.

False killer whale genetics. A preliminary genetic analysis of false killer whales in Hawaii was presented by Susan Chivers. The mitochondrial control region was sequenced for fifty-six samples: 35 from the eastern tropical Pacific, 16 from Hawaii and the remainder from other locations around the world. Although the sequences showed limited genetic variability, nineteen haplotypes were identified and five of these were unique to Hawaii. In phylogenetic analyses, the haplotypes unique to Hawaii (except one) grouped together, suggesting a Hawaii clade exists. Further analyses will be conducted as more samples become available.

Status of longline fishery classification. Previously, the SRG recommended that the Pacific pelagic longline fishery (based in Hawaii and the West Coast) be recategorized from a Category-III to a Category-II fishery because observer data indicated serious injuries had occurred to marine mammals that were hooked and released trailing gear. Tim Price presented a table (PSRG-21) of observer data (primarily collected to record turtle interactions) on marine mammal interactions by hook type (swordfish-style fishing uses "J" hooks and tuna-style fishing uses circle hooks) for the period February 1994 through September 2001. From these data, it appears that more marine mammal interactions occur when "J" hooks are used. Interactions were recorded for eight species of marine mammals. Based on this additional evidence of marine mammal serious injury and mortality, the SRG reiterated its recommendation that this fishery be reclassified as a Category II fishery.

The California-based offshore longline fishery uses the same fishing methods and sometimes shares the same fishing grounds as the Hawaii longline fishery and could be reclassified at least as Category II to be consistent with other fisheries of this type. The SRG previously recommend that both the Hawaii-based and California-based fisheries be considered a single Pacific pelagic longline fishery given the overlap in fishing grounds. Chuck Janisse informed the group that the draft Fisheries Management Plan for this fishery calls for these California-based vessels to conform to the recent regulations applied to vessels in the Hawaii longline fishery.

Hawaii false killer whale SAR. Data show that the estimated serious injuries of the Hawaiian stock of false killer whales caused by the Hawaii-based portion of this fishery continues to exceed PBR and that the fishery could be recategorized as Category I. However, the abundance estimate for this stock is from a relatively small sub-area of the US EEZ (within 25 miles of shore) and the planned Hawaiian cetacean survey may change this stock's status. This stock's status in the draft 2002 SAR for remains strategic. The SRG decided against recommending the formation of a TRT for the fishery at this time given that cetacean abundance estimates for the Hawaiian EEZ will be available after the fall 2002 survey is complete.

Central California Set Gillnet Fishery

Between 1997 and 2001, some of the fishing effort in the California halibut/angel shark set gillnet fishery shifted from Monterey Bay to Morro Bay, where fishing effort has steadily increased (PSRG-10). California Department of Fish and Game (CDFG) estimated fishing effort for 1996-2001 is 32, 88, 139, 121, 284 and 375 days, respectively. The preliminary 2001 estimate of 375 days represents the first three calendar quarters only. In 1999, a NMFS observer program was reinstated in the Monterey Bay portion of the set gillnet fishery in response to renewed concerns over the incidental take of harbor porpoise. There are currently no observers on vessels in Morro Bay and some of the vessels fishing there have started doing multi-day trips, effectively barring the possibility of placing observers on those trips. In September 2000, CDFG issued emergency regulations that restricted fishing in central California halibut set gillnet fishery to waters deeper than 60 fathoms because of concern over bycatch of seabirds and sea otters. The closure area extended from Point Reyes to Yankee Point in Monterey Bay and from Point Arguello to Point Sal in Santa Barbara County (the area from Yankee Point to Point Sal remained open to fishing outside of 30 fathoms). In April 2001, CDFG proposed permanent year-round regulations to eliminate set gillnet fishing inshore of 60 fathoms from Point Reyes to Point Arguello. The emergency closure inside of 60 fathoms has since lapsed and at least one vessel has resumed fishing outside of 30 fathoms in Monterey Bay. CDFG intends to make permanent a 60-fathom closure for the set gillnet fishery from Point Reyes to Point Arguello by May 2002. A permanent closure likely would reduce harbor porpoise mortality in the Morro Bay, where the estimated mortality for 2001 exceeds the PBR of the Morro Bay stock. If a permanent closure were not instated, the SRG would recommend the continuation of the observer program of the Monterey Bay shark/halibut gillnet fishery.

Harbor Porpoise

Review of new stock boundaries: Susan Chivers presented the revised stock boundaries in the draft 2002 SARS, based on genetics data and density discontinuities identified from aerial surveys, resulting in five west coast stocks where previously there had been three. The newly defined stocks are: 1) Morro Bay, 2) Monterey Bay, 3) San Francisco-Russian River, 4) northern California/southern Oregon stock, 5) Oregon/Washington coast.

Chivers presented a satellite track from a rehabilitated animal that originally stranded in Northern California and was rehabilitated and released in Monterey Bay (PSRG-5). The animal has not traveled north of Point Reyes and was last recorded back in the vicinity offshore of Monterey Bay. Satellite tracks of four wild-caught harbor porpoise near the Sekiu River were also presented. The tracks depicted fairly small-scale movements though some of the animals

crossed the suggested north-south boundary (but see below) between the Washington Inland Waters stock and the Oregon/Washington Coast stock.

Central California Harbor Porpoise Abundance: Central California harbor porpoise abundance has been estimated from aerial surveys between the coast and the 50-fathom isobath. Karin Forney's analysis of harbor porpoise trends suggests that the proportion of California harbor porpoise in deeper waters may vary between years. In 1999, aerial surveys extended farther offshore (to the 200-m depth contour or 15 nmi distance, whichever was farther) to provide a more complete abundance estimate. Based on a suggestion from the SRG meeting in November 2000, the NMFS presented a modified analysis of the aerial survey abundance data from 1997-1999 that included the data collected farther offshore during the 1999 survey (PSRG-8).

Review of Harbor Porpoise SARs: The trend analysis figure captions for the three Central California SARs were changed to clarify that the analysis has not yet been redone separately for each new stock. Based on the annual mortality from the 1996-2000 fishing effort and the available observer data on mortality (from 1990-1994), the mean annual takes from these stocks are below PBR. However, because fishing effort in Morro Bay more than doubled between 1999 and 2000 (and has continued to increase in 2001), estimated harbor porpoise mortality in 2000 and 2001 would meet or exceed the PBR, resulting in "strategic" classification. The SRG cautioned that confidence in any mortality estimate for this stock is low, because the kill rate is based on only 43 observed trips between 1990-94 and one observed mortality in 1990 when the fishery was still permitted to operate inshore of 30 fathoms. As noted above, observer should be placed aboard boats in this fishery to get more up-to-date mortality data if the fishery is continues to fish inside the 60-fathom contour.

SARs for the three new stocks (Morro Bay, Monterey Bay, San Francisco-Russian River) were reviewed. Changes to the Northern California SAR included: 1) a new name for the stock (Northern California/Southern Oregon), 2) description of the new stock boundaries for harbor porpoise along the west coast, 3) recalculation of abundance estimates eliminating data older than five years (*i.e.*, data from 1995 and 1996), 3) update of fishery information. The Oregon/Washington coast and Washington Inland Waters SARs were revised to reflect the new west coast harbor porpoise stock boundaries. The Washington Inland Waters SAR was updated with new fishery information. The boundary running north/south depicted in this SAR had appeared in a previous SAR running east/west. The change appears to have occurred after the 1997 SAR. The SRG suggested using the east/west boundary so that it matches the abundance data for the stock.

Harbor Seals

California Harbor Seal Census. The 2001 aerial photographic survey of harbor seals was completed and a new estimate for seals counted during peak haul-out periods at the Channel Islands and southern California mainland were presented (PSRG-12). The count from this survey the lowest count ever recorded for the mainland and offshore islands combined. The low count may be explained by the timing of survey if it did not capture the peak haul-out period. The SRG made several suggestions to investigate the temporal variation in counts including looking for a correlation between the counts and survey timing, using a environmental factor calibration to help predict counts (akin to calibrations employed in Alaska), conducting repeated

surveys during different seasons to compare counts from pupping and molting periods, and using average molting time information from ground counts to schedule aerial surveys. A series of site counts from Point Reyes for 1997-2001 did not suggest a decrease in the number of pups counted or maximum number of molting seals counted (PSRG-16). The California harbor seal SAR was not revised using the 2001 counts from aerial surveys.

Review of the Oregon/Washington and Washington Inland Waters Harbor Seal SARs. Changes to the Oregon/Washington and Washington Inland Waters SARs included: 1) updated population size information based on data less than five years old; 2) description of a new analysis of maximum net productivity; 3) updated fishery and other mortality information.

Northern Elephant Seals

Review of SAR: The northern elephant seal SAR was revised with new abundance data from 2001 and new fishery and other mortality information. The SRG suggested that male and juvenile counts from places other than the Channel Islands may be available and could be included in the minimum population estimate.

Hawaiian Monk Seals

Review of draft SAR: The draft SAR is being updated and was not yet completed for review by the SRG. Jason Baker summarized the changes (via videophone) that will be incorporated into the SAR. The new SAR will contain beach counts for 2000 at all main reproductive sites except Midway Atoll and counts from the first systematic survey of the main Hawaiian Islands in 2000. Since 1985, this species has declined on average approximately 3% per year; however, the net productivity rate, calculated using a loglinear regression of beach counts of non-pups from 1985-2000, appears flat.

Hawaiian monk seals become entangled in fisheries and other marine debris, though the types of fishing gear which entangles Hawaiian monk seals are not used used in local fisheries. The SRG discussed how entanglements with debris should be treated (*e.g.*, as incidental fishery mortality or as other human-caused mortality) given that fisheries may not be the sole source of the debris. It was noted that an exercise to apportion net debris into fishery and cargo categories was done recently by NMFS as part of its Biological Opinion preparation. It was also proposed that marine debris have a separate category under the "human-caused mortality and serious injury section" akin to the ship strikes category under this section in the large whale SARs. The SRG suggested that the entanglement and gear ID information be made consistent across SARs. The SRG also noted the value in determining debris accumulation rates and/or survival rate data for pups on cleaned versus non-cleaned reefs.

Revisions to the draft SAR included: 1) updated population size and trend information with 2000 survey data; 2) updated fishery mortality data and information on recent Hawaii longline fishery regulatory measures; 3) revised entanglement in marine debris section to reflect recent debris cleanup efforts and analyses. Results from satellite tagging and foraging ecology studies conducted in 2000 will be added to the SAR before it is finalized. The final SAR will also reflect the most recent changes in the Hawaii longline fishery.

Status of Monk Seal Recovery Team: A new monk seal recovery team was recently formed, though not all the members have been finalized yet. The first meeting of the team is scheduled for early March 2002. The formation of the new team was prompted by the desire to incorporate more management issues in the process as opposed to a primarily research-based orientation. The team is composed of scientists and management experts including representatives from Department of Defense, State of Hawaii, the Fishery Management Council, and environmental organizations. The existing recovery plan will be reviewed by the new team and updated or revised as appropriate. Because the team no longer includes members with long-term expertise on the recovery plan development and research recommendations, the SRG agreed that they should take a more active role in assessing the status of research on this species and in making research recommendations.

Southern Resident Killer Whale Stock

The SRG was presented information about declining numbers of the Southern Resident killer whales in Puget Sound in its December 1999 meeting in Maui, Hawaii. Because of this decline, the NMFS has been petitioned to list this population as endangered under the ESA. This petition poses a series of questions that must be confronted to manage this population.

Is there a real decline in the Southern Resident population, or is it just the latest in a series of demographic blips? This population is small and is likely subject to stochastic changes in size and has shown cyclic changes in the past.

If this is a real decline, what is the cause of the decline? Potential causes are declining salmon stocks, residual contaminants, harassment by whale watching and boat traffic, oceanographic regime shifts, or some combination of these factors.

If there are one or more causes for the decline, are there any solutions for these potential problems? From a PBR prospective, we have little experience in dealing with non-fishery-related interactions.

How would the ESA provide more possibilities for solutions than currently available? And if the stock is listed, what additional constraints would an ESA listing have on research and management activities?

Assuming that the answers to these questions are unknown or uncertain, what research is necessary to provide more information?

In the more-familiar PBR framework, does the endangered listing by Canada or the potential listing by the U.S. convince the SRG of the need to change the Recovery Factor?

Garth Griffin of the NMFS Northwest Region summarized the review process to list southern resident killer whales under the ESA (PSRG-20). The NMFS received a petition to list southern resident killer whales on 2 May 2001. On 13 August 2001, NMFS published a positive "90-day finding" accepting the petition and formally initiating an ESA status review. The status review is a joint effort between the Northwest Region's Protected Resources Division and the

NMFS Biological Review Team. NMFS can list species, subspecies or distinct population segments (DPS) of a species. Although NMFS has an Evolutionarily Significant Unit (ESU) policy for Pacific Salmon, it does not have such a policy for other species. Thus, for this status review NMFS will rely on the joint NMFS/FWS policy on identifying a discrete and biologically and ecologically significant DPS. The deadline for the one-year finding is 2 May 2002. During the public and peer comment period following this deadline, the SRG would like to review and comment on the proposed action.

Barb Taylor presented the results of analyses on the Southern Resident killer whale stock prepared by Paul Wade for the November 2001 Biennial Conference of the Society for Marine Mammalogy. Photographic data collected since 1974 were used to estimate demographic parameters for the stock. Survival rates were examined by age and sex and compared over time to look for patterns. Overall population survival rates show periods of relatively high survival that match the periods of increase, and periods or relatively low survival matched to periods of decline. Trends in survival by age and sex category were tested statistically with mark-recapture analysis, using AIC. The model that fit the data best had an identical pattern across age and sex categories through time, with four different survival periods, but allowed for survival to be scaled differently for each category, as expected. This periodic model fit best with a six-year cycle. Comparisons were also made across the three resident pods to see if pods were differentially surviving. Results are not yet conclusive on these inter-pod comparisons.

Results from a fitting exercise with birth rates indicted a periodic model with an 8-year time lag fit best. Low periods in birth and survival rates did coincide, but the analysis did not provide a clear explanation for the 8-year cycle (*e.g.*, El Nino events). The analyses described here are also being done on the Northern Resident and Southeast Alaskan stocks.

Potential influences on this stock include changes in age-structure from live-capture removals in the 1960s, declines in abundance of prey such as salmon and other marine fish, and the recent discovery of high PCB concentrations in these whales. The fraction of adult males in the southern resident stock is abnormally low (about 10%), which is consistent with the hypothesis that contaminant loads are adversely impacting this stock. Cetaceans can carry high contaminant loads, sequestered in their blubber, with little apparent harm. However, declining prey resources can trigger mobilization of the fat reserves in the blubber, causing a release of the contaminants into other body systems. The individuals most likely affected by contaminant loads would be first-born calves, who potentially receive large loads in milk when the mothers need to mobilize their fat reserves during lactation, and older males, who continually accumulate contaminants from their prey, and are unable rid themselves transfer these loads to offspring through lactation. To investigate if birth order is correlated with survival, a comparative analysis with the northern resident stock is being done. Currently, there are three males in the Southern Resident population (all in the L pod), which introduces the potential for Allee effects as an additional hypothesis for the population decline.

In order to test these hypotheses, to identify critical habitat, and to determine population discreteness, the SRG recommended that the following studies be conducted: 1) satellite tagging of Southern Resident killer whales to determine their habitat and movements during the seasons

when they are not seen in Puget Sound, and 2) biopsy sampling to determine population discreteness, genetic relationships, and genetic diversity within these pods.

Southern Resident killer whales are subject to whale watching and during the summer numerous vessels (20-40), mostly private, are apparently in the vicinity of these whales all day long. The SRG recommended that management, enforcement, and education efforts be conducted in concert by NMFS, Washington State Department of Fish and Wildlife, and relevant Canadian agencies to assess the potential impact from these activities.

Review of Southern Resident Killer Whale SAR. The SRG discussed whether the recent listing of southern resident killer whales as endangered under the Canadian Species at Risk Act should be reflected in the Recovery Factor. The justification for the listing was based on IUCN criteria for small populations. The SRG decided not to change the recovery factor for this stock at this time because the potential ESA listing by the US is still pending and because additional scientific analyses are currently being conducted that may better elucidate the cause and potential effect of the stock's decline, which currently has no identifiable human-caused mortality. The SAR was revised to include population size data from 2001. Suggested changes to the SAR included: 1) updating the "Canadian COSEWIC" reference to read the "Canadian Species at Risk Act" and 2) modifying Figure 2 to make the line markers consistent.

ORCAWALE Survey Preliminary Results

The Oregon/California/Washington marine mammal line transect survey was conducted between 30 July and 10 November 2001. The study included waters out to a distance of approximately 300 nmi from the coast. A total of 513 cetacean schools were observed. A total of 10,069 km were surveyed and the study was covered uniformly, though not all the planned transects were covered because of vessel breakdowns. This resulted in approximately 30% less effort than the 1996 ORCAWALE survey. Environmental and acoustic data were collected throughout the survey. Estimates from the 2001 survey will be available for use in the next SARs.

Sperm whales were sighted with about the same density as past surveys. There was a decreasing trend from 1991 to 2001 in three species of beaked whales (ziphiid, *Mesoplodon* spp., and Cuvier's). The number of strandings of these species is too small to corroborate this apparent trend. Application of recent methods developed for correlating regime shifts and other changes in oceanographic conditions to marine mammal abundance and distribution are being extended to more species and may help clarify these results. Blue whale sightings were much lower than past ORCAWALE surveys, but it appears this result is a consequence of survey coverage and/or trackline width because several sightings of very concentrated groups were made during photographic identification studies of this species off the West Coast. The photoidentification study may provide a more precise estimate of blue whale abundance for 2001.

In past SARs, data from two surveys, which have been conducted every five years since 1991, were averaged to produce abundance estimates for calculating PBR levels. If only the 2001 survey data were used, PBR levels for some of the rare species would become zero (*e.g.*,

pilot whales). The SRG suggested averaging data from the most recent two surveys as was done previously.

California Driftnet Fishery

Chuck Janisse informed the SRG of potential changes that may occur in the California drift gillnet fishery because the Fishery Management Council intends to include this fishery in its highly migratory species Fishery Management Plan. A jurisdictional split of existing regulations has been proposed in which regulations on closures and gear limits would become federalized and the limited entry process would remain with the State.

In addition to the existing time/area closure imposed by the State, a federal time/area closure for leatherback turtles has been imposed. Oregon and Washington have proposed a permanent closure north of 45°N latitude to protect marine mammals and turtles.

A new drift gillnet fishery has developed that uses smaller mesh (<14 in) sea bass gear and targets albacore and bluefin tunas approximately 25 m off Morro Bay. Because the albacore do not move this close inshore every year, the fishery is transitory off Morro Bay. The number of boats involved is not known and there is no information as to whether pingers, suspenders or other precautionary gear are being used. The fishery is listed under the Magnusson List of Fisheries (under the general category of commercial gillnets) but not under the MMPA List of Fisheries. The SRG noted that there are several small fisheries using drift gillnet gear (*e.g.*, a yellowtail fishery off San Diego and a barracuda fishery) that are currently not monitored and are not addressed by the drift gillnet TRT. The SRG thought it was important to identify and distinguish these fisheries. It was recommended that the TRT review these fisheries so that the amount of information available on these fisheries can be assessed and a more thorough characterization of them made.

Information on observed sets and bycatch in the California/Oregon drift gillnet fishery (mesh size >14 in) was supplied by the Southwest Region (PSRG-11). Observed sets declined in 2001 though observer coverage remains around 20% of all sets. Less fishing effort overall is expected in 2002 because leatherback turtle protection measures will close part of the coastline to swordfish fishing. Some pingers used on these nets now have improved battery life and observers now check pinger operation before each trip. The SRG commended the fisherman, other individuals involved and NMFS on their efforts to bring this fishery into compliance.

Southwest Region Stranding Network Status

The SRG reviewed the national and regional funding priorities for collection of data from live or dead stranded marine mammals under the Prescott Grant process (PSRG-22). The SRG recommends that priorities for Prescott Grant funding grams take into account specific needs identified through SRG and TRT processes, recognizing that the data needs for health assessment are broad, requiring information on such topics as life history, food habits, and population structure.

Large Whales

Review of abundance estimates. The final version of a report on estimates of large whale abundance presented to the SRG at its previous meeting was discussed (PSRG-3). The data in the report were re-stratified and data from the 1991 marine mammal survey were removed because they are over ten years old. Some further analyses on sperm whales were added to better estimate their abundance.

The final report on photoidentification studies of humpback and blue whales off California, Oregon and Washington in 2000 was also submitted for the meeting (PSRG-4). The photoidentification studies are in good agreement with the line-transect ship surveys and produce more precise estimates than those from the line-transect surveys. The locations of sightings in 2000 were more clumped than in past years owing to more limited support for field effort. More than half of the humpback and blue whale identifications were made in the Monterey Bay area because of the steady concentration of whales in this area and a high research effort in this area. The 2000 identifications provided an updated abundance estimate for humpback whales of 715 (CV = 0.17), which is considerably lower than estimates in recent years and counter to the increasing trend seen since the early 1990s. The lower estimate appears to be at least partly a consequence of the lack of representative coverage in 2000. Mark-recapture estimates using the 2000 sample and the 1998 dataset, which was not as geographically biased, yielded an estimate of 856 (CV= 0.12).

Review of humpback whales SAR. The abundance estimate used for the SAR is the mark-recapture estimate based on comparing 1998 to 2000 described above. The SAR was also updated with recent fishery and ship strike information. The SRG decided to delay a discussion about changing the recovery factor for this stock until they have reviewed the criteria being developed by the working group on recovery factors. For the whale reported stranded and entangled in nylon line, it was suggested that the gear be identified to determine with more certainty whether this mortality is clearly fishery-related.

Sea Otters

Washington's sea otter population was extirpated by the early 1900s. In 1969 and 1970, a total of 59 sea otters were captured at Amchitka Island, Alaska, and released off Washington's Olympic Peninsula coast. Steve Jeffries provided the results of a 2001 aerial survey of the reintroduced sea otter population in Washington State (PSRG-18). The highest count for the survey was 555 sea otters, an increase of 10% from 2000, while 45 pups were seen (no pups were seen during the 2000 surveys). The population has been growing at an average rate of 12% since 1989. Although there is an increasing trend for this stock over the last ten years, the overall rate of growth may be slowing because the actual number of animals observed is less than the regression model predicted. Another sea otter stock that originated from animals translocated from Amchitka Island is present in British Columbia and numbers over 2,000 animals. The British Columbia sea otter population has been increasing and expanding its range along the west coast of Vancouver Island. Currently there is no evidence of interchange between the Washington and British Columbia populations, although as these populations grow, these populations could coalesce. The southern range of the Washington population may expand into southern Oregon as well. A few animals have also been seen in Puget Sound south of Seattle.

Review of Washington Sea Otter SAR. Deanna Lynch of the USFWS presented an updated SAR for this stock (PSRG-18). For the status of the stock section, Optimum Sustainable Population (OSP) was calculated for Washington State only. If there is interchange between the Washington and British Columbia populations, it may be advisable to recalculate OSP over a larger range. Currently, there are few sightings in Oregon (1-2 per year), so the effect of including this area in OSP calculations is minor at this time. Before sea otters in Oregon can be included in the stock's OSP calculations, more habitat work would need to be conducted in Oregon. The SRG noted the ambiguity in stock boundaries as they are currently represented in the SARs, namely that any sea otters in Oregon are not included in either the Washington or California stocks SARs. The group agreed this stock boundary issue will be revisited when more evidence exists of Washington sea otters expanding their range into Oregon. With the potential for the British Columbia and Washington populations to coalesce, the stock boundaries in the SARs will also have to be reevaluated to address transboundary issues.

It was suggested that the mortality table for this stock include observations made of the northern Washington marine set gillnet fishery (a tribal fishery in coastal waters) for harbor porpoise. Mortality of other species was observed and the SRG urged the USFWS to obtain the those data from the Makah tribe even though the gear used as a part of this fishery has not been deployed in the last five years.

The southern sea otter currently does not have a formal designated status under the MMPA, although USFWS is currently requesting a designation. The stock is classified as "endangered" by the State of Washington but is not listed as "threatened" or "endangered" under the ESA. The SRG recommended in the initial review of this stock that a Recovery Factor of 0.5 be used in recognition of the state's listing and because of the stock's small and vulnerable population size.

The SRG reiterated its previous recommendation that the USFWS update and finalize its SAR for the California stock of southern sea otters so that the USFWS and the SRG can meet their statutory responsibilities under the MMPA to review annually SARS of strategic stocks. The last SAR on the California stock of southern sea otters reviewed by the SRG was a draft version updated in 1997. The last published SAR dates back to 1995.

Topics Proposed for Next Meetings

Possible Spring 2002 Meeting

1) Review of 1-yr finding for southern resident killer whales under ESA status review
2) Criteria for changing recovery factors
3) Updated blue whale SAR
4) Low Frequency Sonar and potential for human-related mortality
5) Revised harbor seal SAR pending repeat census
6) Updated humpback whale estimate

Fall 2002 Meeting

1) ORCAWALE survey results and new SARS

2) Southern resident killer whales
3) Hawaii stranding network
4) Review of west coast fisheries
5) Hawaii longline fishery update

REVIEW OF PREVIOUS RESEARCH AND MANAGEMENT RECOMMENDATIONS

Sperm whales are a major management and research concern because the mortality in the CA drift-net fishery has often exceeded PBR. Despite the intensive sperm whale research efforts conducted by NMFS in recent years, more research is needed to determine stock structure and boundaries by:

a) increasing tissue sample collection (particularly in the waters of California, Oregon, Washington and the Gulf of Alaska) and effort devoted to genetic analysis of these samples;

b) expanding future surveys offshore and northward through British Columbia and the Gulf of Alaska;

c) using acoustic arrays off Alaska and along the West Coast to monitor migration patterns.

Genetic analyses have been conducted, but insufficient sample size has made stock structure interpretation problematic. The study is ongoing, however, and samples collected off California, Oregon, and Washington in 2001 on the ORCAWALE cruise has doubled the sample size. Insufficient funding and shiptime were available to expand the range of the ORCAWALE survey northward.

The Pacific SRG recommends conducting a comprehensive survey of the Hawaiian archipelago as there are known marine mammal-fishery interactions and yet little or no information about the abundance and status of Hawaiian cetacean stocks. Because Congress has mandated that intensive dolphin surveys and stress-related studies be conducted in the eastern tropical Pacific during 1998-2001, neither NOAA ship time, funding for suitable charter vessels, nor SWFSC personnel have been available to conduct surveys in Hawaii. At the conclusion of the eastern tropical Pacific surveys, the SRG recommends that:

1) adequate funding and ship time be allocated for a survey to fill the large gap in our knowledge of Hawaiian cetaceans.

In addition, the SRG recommends that smaller-scale research projects be initiated to assist in monitoring dolphin mortality and trends in abundance, such as:

2) devote more personnel and resources to develop a comprehensive marine mammal stranding program to collect life history, stock structure, and pathology data, and evidence of fisheries interactions. Including trained local marine mammalogists in such a network should be adopted as has been effective in other successful stranding programs.

3) conduct photo-identification and biopsy studies of cetaceans to estimate population abundance using mark-resight methods, to acquire genetic samples, and to monitor evidence of gunshots or fishery interactions.

4) conduct radio- or satellite-tracking studies of cetaceans to determine home ranges and to infer population structure.

5) update assessments of fisheries interactions with marine mammals. This could be aided by coordination with the monk seal program to obtain observer mortality data from domestic and foreign fisheries operating near Hawaii.
6) investigate the potential harmful effects on spinner dolphins caused by the increase in tourboat and human swimmer interactions.

A comprehensive survey of the Hawaiian archipelago is scheduled for July-December 2002. Independent researchers (Robin Baird, Hannah Bernard, and Marc Lammers) have initiated photo-identification and tracking studies on nearshore Hawaiian cetaceans. This work has continued in 2002 and has been expanded in area.

Observer data from the Pacific pelagic longline fishery (based in Hawaii and the West Coast) indicate that there is more than a remote likelihood of serious injury and mortality (Category III) for cetaceans in this fishery. Previously, the SRG has recommended that this fishery be recategorized as Category II because observer data that indicated serious injuries have occurred to marine mammals that were hooked and released trailing gear. Data now indicate that the estimated serious injuries of Hawaiian stock of false killer whales caused by this fishery exceeds PBR and that the fishery could be recategorized as Category I.

NMFS has declined to recategorize this fishery.

Although the mortality of Hawaiian false killer whales currently exceeds PBR, the SRG does not recommend the formation of a Take Reduction Team for the Pacific pelagic longline fishery at this time. The abundance estimate for this stock is based on a survey that covered a small fraction of the US EEZ, and more effort should be devoted to obtaining better estimates.

NMFS has agreed that no TRT should be formed at this time, and the Hawaii survey is scheduled for July-December 2002.

The SRG recommends that the USFWS update and finalize its Stock Assessment Report on sea otters so that the USFWS and the SRG can meet their statutory responsibilities under the MMPA to review annually the Stock Assessment Reports of strategic stocks. The last SAR on sea otters reviewed by the SRG was a draft version updated in 1997.

The last SAR on southern sea otters reviewed by the SRG was a draft version updated in 1997. A revised SAR for the Washington stock, however, was presented at January 2002 meeting.

The SRG recommends that the Working Group on Recovery Factors should prepare guidelines for alternative Recovery Factors to the defaults for endangered species. The SRG notes the fast-approaching deadline (30 April 2001) for determining whether or not fisheries have met the Zero Mortality Rate Goal. It is important that this analysis be completed and reviewed by the SRG in advance of this deadline.

Despite the passage of the deadline, no guidelines for alternative Recovery Factors have been produced. The SRG will work with NMFS scientists to develop such guidelines for use by the Pacific SRG.

RESEARCH AND MANAGEMENT RECOMMENDATIONS
Pacific Scientific Review Group – January, 2002

Previously, the SRG has recommended that the Pacific pelagic longline fishery (based in Hawaii and the West Coast) be recategorized from a Category-III to a Category-II fishery because observer data indicated serious injuries have occurred to marine mammals. Even stronger evidence of marine mammal serious injury and mortality is now available to support reclassification and the SRG recommends again that it be reclassified as a Category-II fishery.

The Southern Resident stock of killer whales is being considered for an ESA listing. Despite the long-term studies on this population, significant gaps in our information exist that hinder our ability to fully identify critical habitat, determine population discreteness, and assess the potential for Allee effects and inbreeding. The SRG recommends that the following studies be conducted to fill these gaps in our knowledge.

1) Satellite tagging of Southern Resident killer whales to determine their habitat and movements during the seasons when they are not seen in Puget Sound.

2) Biopsy sampling to determine population discreteness, genetic relationships, and genetic diversity within these pods.

The SRG also recommends that management, enforcement, and education activities be conducted in concert by the NMFS, Washington State Dept. of Fish and Wildlife, and Canadian agencies to reduce the harassment of killer whales by boats.

The SRG notes that the small-mesh gillnet closure within 60 fathoms proposed by the State of California for their central coast will likely reduce mortalities of harbor porpoises and sea otters in an area of concern. In the event that any gillnet fisheries continue operating within the proposed closure area, the SRG recommends that NMFS promptly initiate an observer program to monitor mortality of marine mammals.

The SRG notes that management of marine mammal-fisheries interactions have often been complicated by management and legal decisions concerning other protected species such as sea turtles and sea birds. The SRG recommends that Take Reduction Teams include members with expertise in all protected species affected by the fishery, and that the Team consider these multiple-species problems in its recommendations.

The SRG recommends that the California small-mesh driftnet fishery for albacore be monitored, when it occurs, by observers to characterize the fishery and gather information about marine mammal mortality.

The SRG recommends that priorities for Prescott Grant funding for stranding programs take into account specific needs identified through Scientific Review Group and Take Reduction Team processes, recognizing that the data needs for health assessment are broad, requiring information on such topics as life history, food habits, and population structure.

The SRG recommends that the USFWS update and finalize its Stock Assessment Report on southern sea otters so that the USFWS and the SRG can meet their statutory responsibilities under the MMPA to review annually the Stock Assessment Reports of strategic stocks. The last SAR on southern sea otters reviewed by the SRG was a draft version updated in 1997.

Appendix 1

Attendees at the 12th Meeting of the Pacific Scientific Review Group

Scientific Review Group - Pacific Region

Hannah Bernard
Hawaii Wildlife Fund

Robin Brown
Oregon Department of Fish and Wildlife, Marine Region

Mark Fraker (not attending)
Terramar Environmental Research

Doyle Hanan
HDR Engineering, Inc.

John Heyning
Natural History Museum of Los Angeles County

Chuck Janisse
Federated Independent Seafood Harvesters

Steve Jeffries
Washington Department of Fish and Wildlife, Marine Mammal Investigations

Katherine Ralls
Department of Zoological Research, National Zoological Park, Smithsonian Institution

Michael Scott
Inter-American Tropical Tuna Commission

Terry Wright
Manager of Enhancement Services, Northwest Indian Fisheries Commission

Invited Participants and Observers:

NMFS Southwest Fisheries Science Center
Jay Barlow
Jim Carretta
Susan Chivers
Meghan Donahue
Barbara Taylor
Jason Baker

NMFS Southwest Region
Tim Price
Cathy Campbell

NMFS Office of Protected Resources
Tom Eagle

NMFS National Marine Mammal Laboratory
Marcia Muto

NMFS Northwest Region
Garth Griffin
Joe Scordino

California Department of Fish and Game
Robert Read
Dale Sweetnam

U.S. Fish and Wildlife Service
Deanna Lynch

Appendix 2

Pacific Scientific Review Group Meeting Documents
6-8 November 2000

PSRG-1 Revised Stock Assessment Reports

PSRG-2 Gillnet mortality estimates for 2000. J. Carretta.

PSRG-3 Revised estimates of large whale abundance off California, Oregon, Washington, and Baja California based on 1993 and 1996 ship surveys. J. Barlow and B. Taylor.

PSRG-4 Humpback and blue whale photo-identification research off California, Oregon and Washington in 1999. J. Calambokidis, T. Chandler, L. Schlender, K. Rasmussen and G. Steiger.

PSRG-5 Harbor porpoise tracks from satellite tags. B. Hanson and S. Chivers.

PSRG-6 Hawaii longline cetacean bycatch summary 2000/2001. NMFS Southwest Region.

PSRG-7 SAR summary table. Prepared by J. Carretta.

PSRG-8 California harbor porpoise abundance table. Prepared by J. Carretta.

PSRG-9 ORCAWALE 2001: Update and summary. J. Barlow.

PSRG-10 California set gillnet effort changes. Prepared by J. Carretta.

PSRG-11 California/Oregon drift gillnet bycatch summary for 2001 T. Price.

PSRG-12 Census/survey of harbor seals in California (2000). R. Read and E. Roberts.

PSRG-12A Table of harbor seal counts (1995, 2000, 2001). Prepared by California Department of Fish and Game.

PSRG-12B Survey of harbor seals in California (2001). R. Read and K. Reynolds.

PSRG-13 Pacific SRG recommendations/replies from NMFS.

PSRG-14 Alaska SRG recommendations/replies from NMFS.

PSRG-15 Atlantic SRG recommendations/replies from NMFS.

PSRG-16 Harbor seal count trends at Pt. Reyes. S. Allen, USFWS.

PSRG-17 Sea Otter SAR: Washington stock. Prepared by USFWS.

PSRG-17A Map of sea otter habitat classifications along Washington coast.

PSRG-18 Results of 2001 survey of the reintroduced sea otter population in Washington State. R. Jameson and S. Jeffries.

PSRG-19 Trends and status of harbor seals in Washington State: 1978-1999. S. Jeffries, H. Huber, J. Calambokidis and J. Laake.

PSRG-20 Southern resident killer whales and the ESA. NMFS Northwest Region.

PSRG-21 Table of marine mammal interactions in the Hawaii longline pelagic fishery (1994-2001). Prepared by Southwest Region.

PSRG-22 Prescott Stranding Grant Program funding priorities. NMFS Office of Protected Resources web site.

Appendix 3

AGENDA FOR PACIFIC SRG MEETING
Southwest Fisheries Science Center, La Jolla, California
23-24 January 2002

23 January 2002

General topics
- Review progress by the Working Group on Recovery Factors
- Review progress on the definition of ZMRG (Tom Eagle)
- Discuss NMFS responses to SRG recommendations
- ESA petition review process – Southern resident killer whales (Garth Griffin)

Hawaii longline fishery
- Regulatory framework of fishery (Tim Price)
- Review recent catch and effort data (Jay Barlow)
- *Pseudorca* genetics (Susan Chivers)
- Review status of longline fishery classification
- Hawaii *Pseudorca* SAR

Central California set gillnet fishery (Jim Carretta)

Harbor Porpoise
- Review new stock boundaries (Susan Chivers)
- Central California harbor porpoise abundance (Jim Carretta)
- Review harbor porpoise SARs

Harbor seal
- Review harbor seal census (Robert Read)
- Review Oregon/Washington and Washington Inland Waters harbor seal SARs

Northern elephant seal SAR

Monk seal
- Review SAR (Jason Middlebrook)
- Recovery Team status

Review preliminary recommendations

24 January 2002

Sea otter research and management issues (Deanna Lynch)

Southern Resident killer whale stock
- Review the science in Paul Wade's Vancouver Presentation (Barb Taylor)
- Review Southern Resident killer whale SAR

California Driftnet Fishery (Chuck Janisse)

SWR stranding network status (John Heyning/Hannah Bernard)

ORCAWALE Survey – Preliminary results (Jay Barlow)

Large Whales
- Review updated abundance estimates (Jay Barlow)
- Review humpback whale SAR

Finalize Recommendations

Timing, location, and topics for next meeting

Adjourn